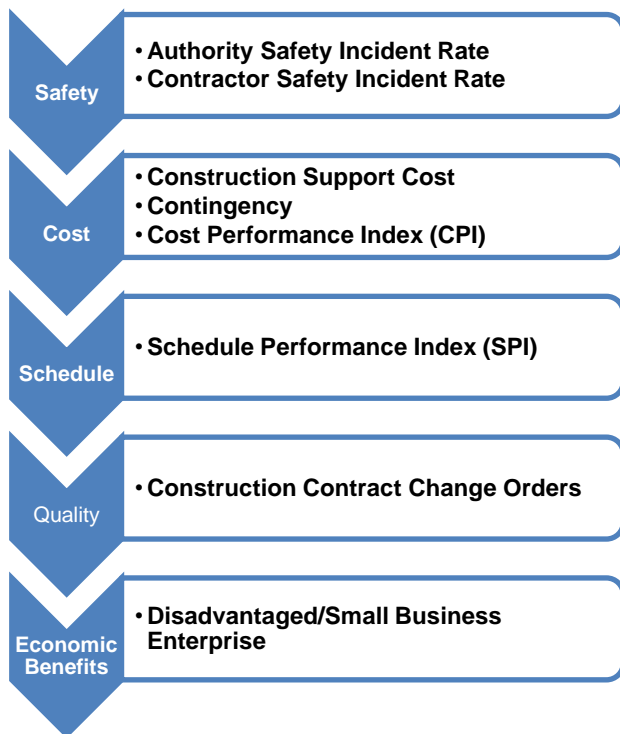


# Finance and Audit Committee

## Performance Metrics

### State Route 99 Realignment Project

#### Contract No. HSR 12-06



#### PERFORMANCE METRICS

The following performance metrics for SR99, a Caltrans design-build project within the limits of CP1, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.

Safety is a top priority and listed first, followed by key metrics for cost, schedule, and quality, as all are fundamental metrics for the management of the project. In addition and in support of the business aspects of the project, three key metrics are included for economic benefits. The Authority's management team, both on the project site and at the headquarters in Sacramento, will also review other aspects of the project's performance. The Authority will track and monitor the trends of these performance metrics to proactively manage the project.



## Performance Metrics

### SAFETY



**Caltrans Safety Incident Rate**  
[Number of injuries and illnesses] ÷  
[Employee hours worked] \* [200,000]



**Contractor Safety Incident Rate**  
[Number of injuries and illnesses] ÷  
[Employee hours worked] \* [200,000]

**COST**



**Total Support Cost**  
[Invoiced to Date Amount] ÷ [Total Capital Cost]



**Construction Contingency**  
[Remaining Contingency Value] ÷ [Construction Contract Value]



**Cost Performance Index (CPI)**  
[Earned Value] ÷ [Actual Cost]

### SCHEDULE



**Schedule Performance Index (SPI)**  
 $[\text{Earned Value}] \div [\text{Planned Value}]$

### QUALITY



**Construction Contract Change Orders  
(CCO's)**  
 $[\text{Number of unplanned CCO's}] \div$   
 $[\text{Construction Dollars Earned}] * [5,000,000]$

**ECONOMIC BENEFITS**



**Disadvantaged/Small Business Enterprise**  
[Total Value of DBE/SBE/DVBE/MB Contracts  
Signed to Date with the Contractor] ÷  
[Construction Contract Value]

*Note: Participation will increase towards the 30% goal, as the project progresses into construction.*

## Performance Metrics – Explanatory Details

Category	Description
<b>General</b>	<b>Data Period</b>
Description	The Performance Metrics represent the period of 2/19/2013 to 8/30/2014.
<b>Safety</b>	<b>Caltrans Safety Incident Rate:</b> $\frac{[\text{Number of injuries and illnesses}]}{[\text{Employee hours worked}]} \times [200,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2.</li> <li>Caltrans has TBD incidents of recordable injury or illness to date.</li> <li>Caltrans has TBD construction hours worked to date.</li> <li>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: <math>(N/EH) \times 200,000</math>, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)</li> <li>Reporting for this metric will commence when construction begins</li> </ul>
<b>Safety</b>	<b>Contractor Safety Incident Rate:</b> $\frac{[\text{Number of injuries and illnesses}]}{[\text{Employee hours worked}]} \times [200,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2.</li> <li>The Contractor has <u>TBD</u> incidents of recordable injury or illness to date. (Will Start reporting in the construction phase of project)</li> <li>The Contractor has <u>TBD</u> hours worked to date.</li> <li>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: <math>(N/EH) \times 200,000</math>, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)</li> <li>Reporting for this metric will commence when construction begins</li> </ul>
<b>Cost</b>	<b>Total Support Cost:</b> $\frac{[\text{Construction Support Cost}]}{[\text{DB Invoiced to Date Amount}]}$
Description	<ul style="list-style-type: none"> <li>The goal is to keep the support cost at <math>\leq 20\%</math> of the Capital cost.</li> <li>Benchmark: The statewide average Support to Capital ratio for project development cost on the State Highway System is approx 32% of the Capital costs for major projects.</li> <li>For this project the Total Support Cost encompasses the effort required to provide Project Management, Contract Administration, Inspection and Quality Control for the Design, Right of Way and Construction phases.</li> <li>Expended to date amount = <u>\$ 12,067,556</u></li> <li>Total Capital Cost = <u>\$ 190,000,000</u></li> </ul>



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Cost	Construction Contingency: $\frac{[\text{Remaining Contingency Value}]}{[\text{Construction Contract Value}]}$
Description	<ul style="list-style-type: none"> <li>The goal is contain the contingency to 5% of the total construction cost.</li> <li>Benchmark: Caltrans is using an alternative procurement method called CMGC. However, their contingency will be established in their normal manner of design-bid-build. Once the project is awarded, a 5% construction contingency will be established. At baseline estimate of \$110,000,000 for construction, a 5% contingency amount would equal \$5,500,000 contingency.</li> <li>The Remaining Contingency = <math>[\text{Current Allocated Contingency Amount}] - [\text{Executed Change Orders}] = \\$\text{TBD}</math></li> <li>The Construction Contract Value = <math>[\text{Construction Contract Amount}] - [\text{Monthly Progress Payment Estimates}] = \text{TBD}</math></li> <li>Reporting for this metric will commence when construction begins</li> </ul>
Cost	Cost Performance Index (CPI): $\frac{\text{Earned Value (EV)}}{\text{Actual Cost (AC)}}$
Description	<ul style="list-style-type: none"> <li>The goal is to achieve <math>\text{CPI} \geq 1</math>, which is same as <math>\geq 100\%</math> when expressed in percent.</li> <li>Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the CPI should be <math>\geq 1</math> or 100%. At a value of 100% the value earned is same as planned, and the project is right on cost.</li> <li>EV = Percent Complete x BAC (Budget at Completion) - <u>\$ 11,579,098</u></li> <li>AC = Actual Costs to Date - <u>\$ 12,067,556</u></li> </ul>
Schedule	Schedule Performance Index (SPI): $\frac{\text{Earned Value (EV)}}{\text{Planned Value (PV)}}$
Description	<ul style="list-style-type: none"> <li>The goal is to achieve <math>\text{SPI} \geq 1</math>, which is same as <math>\geq 100\%</math> when expressed in percent.</li> <li>Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be <math>\geq 1</math> or 100%.</li> <li>At a value of 100% the Project is forecasted to complete on-time.</li> <li>EV= Percent Complete x BAC (Budget at Completion) - <u>\$ 11,579,098</u></li> <li>PV= Planned Value - <u>\$ 11,733,333</u></li> <li>Planned Value in dollars to be spent to date is derived from the approved baseline established for the project.</li> </ul>
Quality	Construction Contract Change Orders (CCO's): $\frac{[\text{Number of unplanned CCO's}]}{[\text{Construction Dollars Earned}]} * [5,000,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to maintain Number of unplanned CCO's to <math>\leq 1.0</math>. This represents 1 construction unplanned CCO per \$5M of construction work performed.</li> <li>The approved baseline schedule currently allocates approximately <u>\$110,000,000</u> to construction activities. This equates to an estimated <u>22</u> unplanned CCO's over the duration of construction to stay within the target.</li> <li>The target rate identified is preliminary and is derived from the professional judgment of multiple Caltrans' managers and experience on other Caltrans' projects. This metric will be measured and trended for refinement throughout the life of this project</li> <li>Reporting for this metric will commence when construction begins</li> </ul>

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Economic Benefits	Disadvantaged/Small Business Enterprise: $\frac{\text{[Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB]}}{\text{[DB Contract Value]}}$
Description	<ul style="list-style-type: none"> <li>• The current goal is achieve <math>\geq 30\%</math>.</li> <li>• Benchmark: As the project design is refined, the contractor executes DBE/SBE/DVBE/MB subcontracts for specific portions of work. At 90 % design, the contractor will provide a schedule of when all of the DBE/SBE/DVBE/MB subcontracts will be signed.</li> <li>• The project will achieve the 30% goal by project completion.</li> <li>• This project will use an alternative procurement method called CMGC, therefore the contractor can utilize executes DBE/SBE/DVBE/MB subcontracts for pre-Construction activities. The Project Team set an intermediate goal of 10% for all sub contracts in the Pre construction phase.</li> </ul> <p>The project has achieved a 10.7 % participation currently in the pre construction phase  Total SB work performed amount = <u>\$ 19,902</u>  Total Sub Contract payments = <u>\$ 186,237</u></p>